

CLAIMS

What is claimed is:

- 1 ~~1. A method comprising:~~
- 2 ~~transmitting data along a first virtual circuit of a plurality of virtual~~
- 3 ~~circuits in a network;~~
- 4 ~~detecting a failure on said first virtual circuit; and~~
- 5 ~~switching transmission of said data from said first virtual circuit to a~~
- 6 ~~second virtual circuit of said plurality of virtual circuits in said network.~~
- 1 2. The method according to claim 1, wherein said network is an
- 2 Internet Protocol (IP) network.
- 1 3. The method according to claim 1, wherein said network is an
- 2 Asynchronous Transfer Mode (ATM) network.
- 1 4. The method according to claim 1, wherein said transmitting
- 2 further comprises:
- 3 transmitting a plurality of detecting cells along said first virtual circuit,
- 4 said second virtual circuit, and each virtual circuit of said plurality of virtual
- 5 ~~circuits.~~

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1 5. The method according to claim 4, wherein said plurality of
2 detecting cells are transmitted at a predetermined frequency.

1 6. The method according to claim 4, wherein each detecting cell of
2 said plurality of detecting cells is an operation and management (OAM)
3 loopback cell having a correlation tag with incrementing sequence number.

1 7. The method according to claim 4, wherein said detecting further
2 comprises:
3 receiving said plurality of detecting cells; and
4 detecting a predetermined gap in said plurality of detecting cells on said
5 first virtual circuit.

1 8. The method according to claim 7, wherein said predetermined
2 gap includes three detecting cells of said plurality of detecting cells.

1 9. The method according to claim 1, further comprising transmitting
2 a plurality of detecting cells along each virtual circuit of said plurality of virtual
3 circuits.

1 10. The method according to claim 7, further comprising:

2 detecting a predetermined sequence of detecting cells of said plurality of
3 detecting cells on said first virtual circuit; and
4 switching transmission of said data from said second virtual circuit to
5 said first virtual circuit.

1 11. The method according to claim 7, further comprises:
2 detecting a predetermined sequence of detecting cells of said plurality of
3 detecting cells on said first virtual circuit; and
4 maintaining transmission of said data along said second virtual circuit.

1 12. The method according to claim 10, wherein said predetermined
2 sequence includes five detecting cells of said plurality of detecting cells.

1 13. The method according to claim 1, wherein said data comprises
2 Asynchronous Transfer Mode (ATM) cells.

1 14. A switch comprising:
2 a gateway module for transmitting data along a first virtual circuit of a
3 plurality of virtual circuits in a network;
4 said gateway module further including a line card for detecting a failure
5 on said first virtual circuit and switching transmission of said data from said
6 first virtual circuit to a second virtual circuit of said plurality of virtual circuits.

1 15. The switch according to claim 14, wherein said gateway module
2 further transmits a plurality of detecting cells along said first virtual circuit,
3 said second virtual circuit, and each virtual circuit of said plurality of virtual
4 circuits.

1 16. The switch according to claim 15, wherein said plurality of
2 detecting cells are transmitted at a predetermined frequency.

1 17. The switch according to claim 15, wherein each detecting cell of
2 said plurality of detecting cells is an operation and management (OAM)
3 loopback cell having a correlation tag with incrementing sequence number.

1 18. The switch according to claim 15, wherein said line card further
2 receives said plurality of detecting cells and detects a predetermined gap in said
3 plurality of detecting cells on said first virtual circuit.

1 19. The switch according to claim 18, wherein said predetermined
2 gap includes three detecting cells of said plurality of detecting cells.

1 20. The switch according to claim 15, wherein said line card further
2 receives said plurality of detecting cells and detects a predetermined sequence
3 of detecting cells of said plurality of detecting cells on said first virtual circuit.

1 21. The switch according to claim 20, wherein said line card further
2 switches transmission of said data from said second virtual circuit to said first
3 virtual circuit.

1 22. The switch according to claim 20, wherein said line card further
2 maintains transmission of said data along said second virtual circuit.

1 23. The switch according to claim 20, wherein said predetermined
2 sequence includes five detecting cells of said plurality of detecting cells.

1 24. The switch according to claim 14, wherein said data comprises
2 Asynchronous Transfer Mode (ATM) cells.

1 ~~25.~~ A computer readable medium containing executable instructions
2 which, when executed in a processing system, cause the system to perform a
3 method comprising:

4 transmitting data along a first virtual circuit of a plurality of virtual
5 circuits in a network;

6 detecting a failure on said first virtual circuit; and

7 switching transmission of said data from said first virtual circuit to a
8 second virtual circuit of said plurality of virtual circuits in said network.

1 26. The computer readable medium according to claim 25, wherein
2 said network is an Internet Protocol (IP) network.

1 27. The computer readable medium according to claim 25, wherein
2 said network is an Asynchronous Transfer Mode (ATM) network.

1 28. The computer readable medium according to claim 25, wherein
2 said transmitting further comprises:
3 transmitting a plurality of detecting cells along said first virtual circuit,
4 said second virtual circuit, and each virtual circuit of said plurality of virtual
5 circuits.

1 29. The computer readable medium according to claim 28, wherein
2 said plurality of detecting cells are transmitted at a predetermined frequency.

1 30. The computer readable medium according to claim 28, wherein
2 each detecting cell of said plurality of detecting cells is an operation and
3 management (OAM) loopback cell having a correlation tag with incrementing
4 sequence number.

1 31. The computer readable medium according to claim 28, wherein
2 said detecting further comprises:

3 receiving said plurality of detecting cells; and
4 detecting a predetermined gap in said plurality of detecting cells on said
5 first virtual circuit.

1 32. The computer readable medium according to claim 31, wherein
2 said predetermined gap includes three detecting cells of said plurality of
3 detecting cells.

1 33. The computer readable medium according to claim 25, wherein
2 said method further comprises transmitting a plurality of detecting cells along
3 each virtual circuit of said plurality of virtual circuits.

1 34. The computer readable medium according to claim 31, wherein
2 said method further comprises:
3 detecting a predetermined sequence of detecting cells of said plurality of
4 detecting cells on said first virtual circuit; and
5 switching transmission of said data from said second virtual circuit to
6 said first virtual circuit.

1 35. The computer readable medium according to claim 31, wherein
2 ~~said method further comprises:~~

3 detecting a predetermined sequence of detecting cells of said plurality of
4 detecting cells on said first virtual circuit; and
5 maintaining transmission of said data along said second virtual circuit.

1 36. The computer readable medium according to claim 34, wherein
2 said predetermined sequence includes five detecting cells of said plurality of
3 detecting cells.

1 37. The computer readable medium according to claim 25, wherein
2 said data comprises Asynchronous Transfer Mode (ATM) cells.

1 ~~38.~~ An apparatus comprising:
2 means for transmitting data along a first virtual circuit of a plurality of
3 virtual circuits in a network;
4 means for detecting a failure on said first virtual circuit; and
5 means for switching transmission of said data from said first virtual
6 circuit to a second virtual circuit of said plurality of virtual circuits in said
7 network.

1 39. The apparatus according to claim 38, wherein said network is an
2 Internet Protocol (IP) network.

1 40. The apparatus according to claim 38, wherein said network is an
2 Asynchronous Transfer Mode (ATM) network.

1 41. The apparatus according to claim 38, further comprising:
2 means for transmitting a plurality of detecting cells along said first
3 virtual circuit, said second virtual circuit, and each virtual circuit of said
4 plurality of virtual circuits.

1 42. The apparatus according to claim 41, wherein said plurality of
2 detecting cells are transmitted at a predetermined frequency.

1 43. The apparatus according to claim 41, wherein each detecting cell
2 of said plurality of detecting cells is an operation and management (OAM)
3 loopback cell having a correlation tag with incrementing sequence number.

1 44. The apparatus according to claim 41, further comprising:
2 means for receiving said plurality of detecting cells; and
3 means for detecting a predetermined gap in said plurality of
4 detecting cells on said first virtual circuit.

1 45. The apparatus according to claim 44, wherein said predetermined
2 gap includes three detecting cells of said plurality of detecting cells.

